

WHAT IS CLAIMED IS:

1 1. An isolated nucleic acid encoding a polypeptide comprising amino acid
2 residues 11-140 of SEQ ID NO:1, or amino acid residues 11-140 of SEQ ID NO:1
3 with a conservative amino acid substitution.

1 2. The isolated nucleic acid of Claim 1 further comprising a heterologous
2 nucleotide sequence.

1 3. An isolated nucleic acid encoding a peptide derived from FGFR1 consisting of
2 16 to 50 amino acids comprising the amino acid sequence of SEQ ID NO:5:
3 Val Xaa Xaa Leu Xaa Xaa Xaa Ile Xaa Leu Xaa Arg Xaa Val Xaa Val;
4 wherein said peptide binds to the PTB domain of SNT1.

1 4. The isolated nucleic acid of Claim 3 further comprising a heterologous
2 nucleotide sequence.

1 5. An isolated nucleic acid encoding a peptide derived from FGFR1 consisting
2 of 16 to 50 amino acids comprising the amino acid sequence of SEQ ID NO:3 or SEQ
3 ID NO:3 with a conservative amino acid substitution; wherein the peptide can bind to
4 the PTB domain of SNT1.

1 6. The isolated nucleic acid of Claim 5 further comprising a heterologous
2 nucleotide sequence.

1 7. A polypeptide comprising the amino acid residues 11-140 of SEQ ID NO:1, or
2 amino acid residues 11-140 of SEQ ID NO:1 with a conservative amino acid
3 substitution.

1 8. A fusion protein or peptide comprising the polypeptide of Claim 7.

1 9. An isolated peptide derived from FGFR1 consisting of 16 to 50 amino acids
2 comprising the amino acid sequence of SEQ ID NO:5:

3 Val Xaa Xaa Leu Xaa Xaa Xaa Ile Xaa Leu Xaa Arg Xaa Val Xaa Val;
4 wherein the peptide can bind to the PTB domain of SNT1.

1 10. A fusion protein or peptide comprising the peptide of Claim 9.

1 11. An isolated peptide derived from FGFR1 consisting of 16 to 50 amino acids
2 comprising the amino acid sequence of SEQ ID NO:3 or SEQ ID NO:3 with a
3 conservative amino acid substitution; wherein said peptide can bind to the PTB
domain of SNT1.

1 12. A fusion protein or peptide comprising the peptide of Claim 11.

1 13. A method of identifying a compound that stabilizes a SNT/FGFR complex
2 using the three-dimensional structure of the SNT/FGFR complex comprising:
3 (a) selecting a potential compound by performing rational drug design
4 with the set of atomic coordinates obtained from Tables 1-5, wherein said selecting is
5 performed in conjunction with computer modeling;

6 (b) contacting the potential compound with a SNT/FGFR complex
7 comprising an SNT or an SNT fragment, and FGFR or an FGFR fragment; and
8 (c) measuring the stability of the SNT/FGFR complex; wherein a potential
9 compound is identified as a compound that stabilizes the SNT/FGFR complex when
10 there is an increase in the stability of the SNT/FGFR complex.

1 14. A method of identifying a compound that destabilizes a SNT/FGFR complex
2 using the three-dimensional structure of the SNT/FGFR complex comprising:

3 (a) selecting a potential compound by performing rational drug design
4 with the set of atomic coordinates obtained from Tables 1-5, wherein said selecting is
5 performed in conjunction with computer modeling;
6 (b) contacting the potential compound with a SNT/FGFR complex
7 comprising an SNT or an SNT fragment, and FGFR or an FGFR fragment; and

8 (c) measuring the stability of the SNT/FGFR complex; wherein a potential
9 compound is identified as a compound that destabilizes the SNT/FGFR complex
10 when there is a decrease in the stability of the SNT/FGFR complex.

1 15. A method of identifying a compound that inhibits the formation of a
2 SNT/FGFR complex using the three-dimensional structure of the SNT/FGFR
3 complex comprising:

4 (a) selecting a potential compound that binds to the PTB domain of SNT;
5 wherein said selecting is performed using rational drug design with the set of atomic
6 coordinates obtained from Tables 1-5, and is performed in conjunction with computer
7 modeling;

8 (b) contacting the potential compound with an SNT or an SNT fragment,
9 and FGFR or an FGFR fragment under conditions in which the SNT/FGFR complex
10 can form in the absence of the potential compound; and

11 (c) measuring the binding affinity of the SNT or the SNT fragment with
12 FGFR or the FGFR fragment; wherein a potential compound is identified as a
13 compound that inhibits the formation of the SNT/FGFR complex when there is a
14 decrease in the binding affinity of the SNT or the SNT fragment with FGFR or the
15 FGFR fragment.

1 16. A method of identifying a compound that stabilizes a SNT/FGFR complex
2 comprising:

3 (a) obtaining a set of atomic coordinates defining the three-dimensional
4 structure of a SNT/FGFR complex consisting of a fragment of SNT consisting of
5 amino acid residues 11-140 of SEQ ID NO:1 and a fragment of FGFR consisting of
6 SEQ ID NO:3;

7 (b) selecting a potential compound by performing rational drug design
8 with the atomic coordinates obtained in step (a), wherein said selecting is performed
9 in conjunction with computer modeling;

10 (c) contacting the potential compound with a SNT/FGFR complex;
11 wherein said SNT/FGFR complex comprises an SNT or an SNT fragment, and FGFR
12 or an FGFR fragment; and

13 (d) measuring the stability of the SNT/FGFR complex of step (c); wherein
14 a potential compound is identified as a compound that stabilizes the SNT/FGFR
15 complex when there is an increase in the stability of the SNT/FGFR complex of step
16 (c).

1 17. A method of identifying a compound that destabilizes a SNT/FGFR complex
2 comprising:

3 (a) obtaining a set of atomic coordinates defining the three-dimensional
4 structure of a SNT/FGFR complex consisting of a fragment of SNT consisting of
5 amino acid residues 11-140 of SEQ ID NO:1 and a fragment of FGFR consisting of
6 SEQ ID NO:3;

7 (b) selecting a potential compound by performing rational drug design
8 with the atomic coordinates obtained in step (a), wherein said selecting is performed
9 in conjunction with computer modeling;

10 (c) contacting the potential compound with a SNT/FGFR complex;
11 wherein said SNT/FGFR complex comprises an SNT or an SNT fragment, and FGFR
12 or an FGFR fragment; and

13 (d) measuring the stability of the SNT/FGFR complex of step (c); wherein
14 a potential compound is identified as a compound that stabilizes the SNT/FGFR
15 complex when there is a decrease in the stability of the SNT/FGFR complex of step
16 (c).

1 18. A method of identifying a compound that inhibits the formation of a
2 SNT/FGFR complex using the three-dimensional structure of the SNT/FGFR
3 complex comprising: comprising:

4 (a) obtaining a set of atomic coordinates defining the three-dimensional
5 structure of a SNT/FGFR complex consisting of a fragment of SNT consisting of
6 amino acid residues 11-140 of SEQ ID NO:1 and a fragment of FGFR consisting of
7 SEQ ID NO:3;

8 (b) selecting a potential compound that binds to the PTB domain of SNT;
9 wherein said selecting is performed using rational drug design with the set of atomic
10 coordinates obtained from step (a), and is performed in conjunction with computer

11 modeling; ;

12 (c) contacting the potential compound with an SNT or an SNT fragment,
13 and FGFR or an FGFR fragment under conditions in which the SNT/FGFR complex
14 can form in the absence of the potential compound; and

15 (d) measuring the binding affinity of the SNT or the SNT fragment with
16 FGFR or the FGFR fragment; wherein a potential compound is identified as a
17 compound that inhibits the formation of the SNT/FGFR complex when there is a
18 decrease in the binding affinity of the SNT or the SNT fragment with FGFR or the
19 FGFR fragment.

1 19. A method of selecting a compound that potentially inhibits the SNT/FGFR
2 dependent cellular signaling pathway comprising:

3 (a) defining the structure of the SNT/FGFR complex by the atomic
4 coordinates obtained from Tables 1-5; and

5 (b) selecting a compound which potentially inhibits the SNT/FGFR
6 dependent cellular signaling pathway; wherein said selecting is performed with the aid
7 of the structure defined in step (a).

1 20. A method of selecting a compound that potentially stimulates the SNT/FGFR
2 dependent cellular signaling pathway comprising:

3 (a) defining the structure of the SNT/FGFR complex by the atomic
4 coordinates obtained from Tables 1-5; and

5 (b) selecting a compound which potentially stimulates the SNT/FGFR
6 dependent cellular signaling pathway; wherein said selecting is performed with the aid
7 of the structure defined in step (a).

1 21. A method of selecting a compound that potentially binds to the PTB domain
2 of SNT1 or the SNT/FGFR complex comprising:

3 (a) defining the structure of the SNT/FGFR complex by the atomic
4 coordinates obtained from Tables 1-5; and
5 (b) selecting a compound which potentially binds the PTB domain of
6 SNT1 or the SNT/FGFR complex; wherein said selecting is performed with the aid of
7 the structure defined in step (a).

1 22. A computer comprising a representation of a SNT/FGFR complex in computer
2 memory which comprises:

3 (a) a machine-readable data storage medium comprising a data storage
4 material encoded with machine-readable data, wherein said data comprises structural
5 coordinates from Tables 1-5;

6 (b) a working memory for storing instructions for processing said
7 machine-readable data;

8 (c) a central processing unit coupled to said working memory and to said
9 machine-readable data storage medium for processing said machine readable data into
10 a three-dimensional representation of the SNT/FGFR complex; and

11 (d) a display coupled to said central-processing unit for displaying said
12 three-dimensional representation.